



**HAL**  
open science

**Interventions that provide synergistic support across all  
three needs tend to result in greater engagement  
Commercial Running Apps How Much do They Support  
Users' Psychological Needs?**

Fernandes G Gomes, Jean-Claude Martin, Xavier Sanchez

► **To cite this version:**

Fernandes G Gomes, Jean-Claude Martin, Xavier Sanchez. Interventions that provide synergistic support across all three needs tend to result in greater engagement Commercial Running Apps How Much do They Support Users' Psychological Needs?. 28th Annual Congress of the EUROPEAN COLLEGE OF SPORT SCIENCE, Jul 2023, Paris, France. hal-04474844

**HAL Id: hal-04474844**

**<https://hal.science/hal-04474844>**

Submitted on 23 Feb 2024

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

## How Much do They Support Users' Psychological Needs?

Gomes Fernandes G.<sup>1</sup>, Martin J.C.<sup>1</sup>, and Sanchez X.<sup>2</sup>

<sup>1</sup> Université Paris-Saclay (Laboratoire Interdisciplinaire de Sciences du Numérique) – FRANCE ; <sup>2</sup> Université d'Orléans (CIAMS; SAPRÉM) - FRANCE

Contact: cap@lisn.upsaclay.fr

### Introduction

- Physical inactivity and sedentary lifestyles: **major health-related risk factors**
- Promoting physical activity → interventions using “**motivational technology**” [2]



### SDT – Basic Psychological Needs

Self-Determination Theory; SDT [1] :

- **Autonomy**: the feeling of being autonomous and always having the choice of one's actions
- **Competence**: relates to the feeling that one can be effective and capable
- **Affiliation**: linked to the need for social ties; → to feel close and valued by others

**Interventions that provide synergistic support across all three needs tend to result in greater engagement**

- + Interventions to improve maintenance of physical activity behavior exist
- ⊘ Lack of interventions that fit different populations and needs in the mid-long term
- Research suggests the importance of tailored interventions [3]

### Goal

How running apps support the three basic psychological needs?

Competence	Autonomy	Relatedness
Offered information to increase users' knowledge and improve performance	Offered freedom in the choice of features, location, or time of the sessions	Offered some interaction between users or between users and coach

### Methods

- Review of the **top ranked commercial running apps** for 2022
- Inclusion criteria: most popular and used apps with a **clear running goal**
- **Total of 8 running apps**
- **Plus 5 other** applications and web services with **particular features**

### Results

#### Features of selected 8 running apps



	Garmin connect	Nike run Club	Strava	Running heroes	Running addict / Campus Coach	Decathlon Coach	Asics Runkeeper	Adidas Running
Creation of a training program	✓	✗	✗	✗	✗	✗	✓	✗
Training program proposed	✓	✓	✓	✗	✓	✓	✓	✓
Statistics	✓	✓	✓	✗	✓	✓	✓	✓
Coach: vocal during sessions	✓	✓	✗	✗	✗	✓	✗	✗
Synchro Watch/ other apps	✓	✓	✓	✓	✓	✓	✓	✓
Mobile phone (watch not needed)	✗	✓	✓	✓	✓	✓	✓	✓
Challenges	✓	✓	✓	✓	✗	✗	✗	✓
Virtual runs	✓	✗	✓	✓	✗	✗	✓	✗
When to replace running shoes	✓	✓	✗	✗	✗	✗	✓	✓
Music synchro	✓	✓	✗	✗	✗	✗	✓	✓

#### Basic Psychological Needs and Tailored Motivation Features

	Garmin connect	Nike run Club	Strava	Running heroes	Running addict / Campus Coach	Decathlon Coach	Asics Runkeeper	Adidas Running
Autonomy	✓	✓	✓	✓	✓	✓	✓	✓
Competence	✓	✓	✓	✓	✓	✗	✗	✓
Relatedness	Réseau social Création de groupes	Réseau social	Réseau social Groupes	Réseau social Groupe avec coach	Interaction entre utilisateurs Interaction avec coach (web)	Partage de photo	Interaction entre utilisateurs	Encourager "Live"
Motivation/ Gamification	Badge	Classement Audio	Compétition Classement	Points/S	Contact avec Coach	✗	Objectif Progrès	Récompense
Individualized Motivation	Notifications avec suggestions personnalisées	✗	✗	✗	✗	✗	✗	✗

#### Features of the 5 other apps



- Collective goals
- Challenges
- Interaction among users
- Rewards
- Gamification

### Discussion

- **None** of the apps **explicitly considered** any psychological needs in their design
- **Personalization** → guarantees programme adherence: **1 out of 8** apps had tailored motivational messages
- SDT dimensions included in the selected running apps
  - **Autonomy**: All apps to some extent
  - **Competence**: 6 out of 8
  - **Relatedness**: All apps but in different forms
- All of the 5 other apps mainly satisfied **relatedness**

### Conclusion

**Limits of commercial apps**  
Lack of tailored motivational content and not based on a theoretical framework

Further research is warranted to fully understand:

- How motivational technology can encourage **long-term adherence**
- How to develop a **common framework** valid for different runners' profiles

### References

- [1] Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology*, 49, 182–185.
- [2] Fogg, B.J. (1998). Persuasive computers: perspectives and research directions. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*.
- [3] Oinas-Kukkonen, Harri & Harjumaa, Marja. (2009). Persuasive Systems Design: Key Issues, Process Model, and System Features. *Communications of the Association for Information Systems*, 24.
- [4] Sabiston, Catherine & Vani, Madison & Jonge, Melissa & Nesbitt, Amy. (2022). Scoping reviews and rapid reviews. *International Review of Sport and Exercise Psychology*, 15, 1-29.
- [5] Orji R., and Moffatt K. (2018). Persuasive technology for health and wellness: state-of-the-art and emerging trends. *Health Informatics J*, 24, 66–91.
- [6] Fogg, B.J. (1998). Persuasive computers: perspectives and research directions. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*.